

## NISTTech

### ION SOURCE AND METHOD FOR MAKING SAME

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#### NIST Docket No. 14-015

#### Abstract

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<p>An embodiment of a high brightness ion source is disclosed. The high brightness ion source is used for producing a high resolution, focused ion beam with applications, e.g., in nanoscale fabrication and analysis tools for nanotechnology. Further disclosed is a method for producing the high brightness ion source, the method including: transverse laser cooling to enhance a brightness of an ion beam. The ion source has advantageous attributes including a brightness greater than or equal to  $10^7$  A m<sup>-2</sup>sr<sup>-1</sup>eV<sup>-1</sup> for a Ba<sup>+</sup> beam. Consequently, the disclosed ion source has a brightness value that is ten times a maximum known brightness of any conventional liquid metal ion source.</p>

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#### Status of Availability

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This invention is available for licensing exclusively or non-exclusively in any field of use.

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